

REMARKS

Claims 1-6 have been examined and are rejected under 103(a).

I. Rejections under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,256,849 to Kim (“Kim”) in view of JP 404257446 to Mukoyama (“Mukoyama”)

The Examiner has rejected claims 1, 2 and 4-6 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of Mukoyama.

A. Claim 1

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites that the lower electrode comprises at least a titanium layer, an iridium layer and a platinum layer. Further, claim 1 recites that a width of a portion of the piezoelectric layer provided on the lower electrode and directly facing the lower electrode at the pressure generating chamber side, and a width y of the pressure generating chamber at the vibration plate side satisfies $0.75 \leq x/y \leq 1$.

Due to the novel aspects of the present invention, the rigidity of the vibration plate increases and it is possible to suppress an increase in the amount of initial displacement of the vibration plate due to residual distortion caused in the piezoelectric element by repeatedly driving the piezoelectric element. In other words, the vibration efficiency of the vibration plate is improved. This is achieved in combination by stipulating the width of the piezoelectric layer on the pressure generating chamber side and that of the pressure generating chamber on the piezoelectric layer side in a predetermined range while setting the shape of the cross section of

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the piezoelectric layer to be trapezoidal, in addition to the properties of the specified materials provided for at least the lower electrode.

In regard to the claimed dimensions, Applicant submits that, for at least the reasons set forth in the November 22, 2005 Amendment, one skilled in the art would not be motivated to combine the teachings of Kim and Mukoyama in the manner asserted by the Examiner. Therefore, all arguments presented in the November 22, 2005 Amendment are incorporated herein.

Further, Applicant submits that neither Kim nor Mukoyama disclose a lower electrode made of at least a titanium layer, an iridium layer and a platinum layer. In Kim, it is disclosed that the lower electrode 3 “is made of a conductive metal or precious metal” (col. 13, lines 37-41). However, the disclosure of Kim’s electrode being made of “metal” fails to teach or suggest the at least three layer structure of the claimed lower electrode, nor the specific materials used to form the at least three layer structure. Further, in Mukoyama, there is no description whatsoever regarding the specific configuration and/or materials that comprise a lower electrode. Thus, even if Applicant assumed *arguendo* that the teachings of the references were in fact combinable in the manner set forth by the Examiner, the alleged combination would still fail to teach or suggest the claimed lower electrode, and in turn, the effect on vibration efficiency.

Based on the foregoing, Applicant submits that claim 1 is patentable over the cited references and respectfully requests the Examiner to reconsider and withdraw the rejection of claim 1.

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B. Claims 2 and 4-6

Since claims 2 and 4-6 are dependent upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

II. Rejection under 35 U.S.C. § 103(a) in view of Kim, Mukoyama and JP 410286960 to Hashizume (“Hashizume”)

The Examiner has rejected claim 3 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim, Mukoyama and Hashizume. However, since claim 3 is dependent upon claim 1, and Hashizume fails to cure the deficient teachings of Kim and Mukoyama, in regard to claim 1, Applicant submits that claim 3 is patentable at least by virtue of its dependency. Applicant further incorporates herein all arguments presented in the November 22, 2005 Amendment regarding claim 3.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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Date: May 15, 2006